

GOLUBEV, A.A. (Leningrad)

Peculiar relationship between concentrations of some volatile  
substances in the air and the development of emphysema. Gig.truda  
i prof.zab. no.4:46-50 JI-Ag '57. (MIRA 10:11)

1. Institut gigiyeny truda i profzabolevaniy.  
(EMPHYSEMA, PULMONARY) (AIR-POLLUTION)

GOLUBEV, A. A.; LYUBLINA, Ye. I. (Leningrad)

Calculation method for establishing approximately the maximum permissible concentration of organic substances in the atmosphere of industrial premises. Gig. truda i prof. zab. no.4:26-32 '62.  
(MIRA 15:4)

1. Institut gigiyeny truda i profzabolevaniy.

(INDUSTRIAL TOXICOLOGY)

LYUBLINA, Ye.I.; GOLUBEV, A.A.

Use of the method of correlative groups of isotopes  
for discovering the relation between the physicochemical  
properties of substances and their toxicity. Prim. mat.  
metod. v biol. no.2:90-93 '63. (MIRA 16:11)

\*

LYUBINA, YE. I. and GOLUBEV, A.A.

"New Data on the possibility of Calculating Tentative Maximum Permissible Concentrations of Toxic Substances."

Report presented at the 2nd All-Union Scientific Conference on the Hygiene and Toxicology of Pesticides, Ministry of Health USSR Committee on the Study and Regulation of New Poisonous Chemicals of the Main State Sanitary Inspection USSR and Kiev Institute of Labor Hygiene and Occupational Diseases, Kiev 17-19 Oct. 1962.  
(Gigiyena i Sanitariya, No. 3, 1963 p. 104-105.)

Kiev Institute of Labor Hygiene and Occupational Diseases.

ACC NR: AR6035077

SOURCE CODE: UR/0169/66/000/008/G006/G006

AUTHOR: Zhdanov, V. V.; Golubev, A. A.

TITLE: Petrophysical investigations related to the deep-seated structure of the Earth's crust

SOURCE: Ref. zh. Geofizika, Abs. 8G37

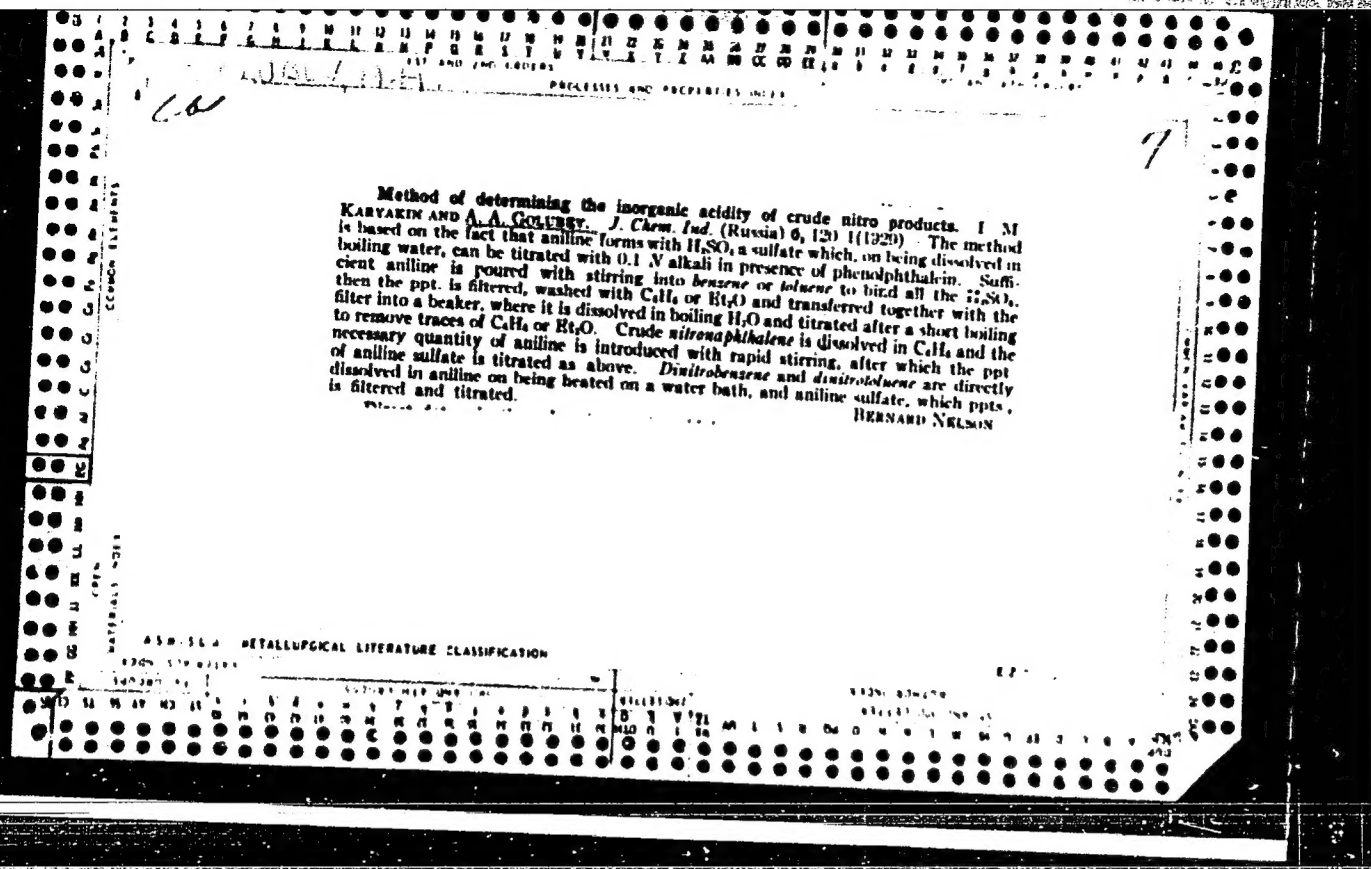
REF SOURCE: Sb. Materialy k Soveshchaniyu Obshchiye zakonomern. geol. yavleniy, 1966. Vyp. I. L., 1965, 331-335

TOPIC TAGS: earth crust, parameter, magnetite, petrophysical research

ABSTRACT: Petrophysical research includes study of physical properties of <sup>12</sup>rocks and determination of a correlation dependency between physical parameters and the conditions of formation of magnetic and metamorphic rock. Direct dependences have been determined between the density and the basicity of igneous rocks, between the degree of magnetism and the magnetic content of the rock, and so on. This indicates great possibilities for petrophysical investigations during study of the deep-seated structure of the Earth's crust. [Translation of abstract]

SUB CODE: 08, 20/

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PROCESSES AND PROPERTIES INDEX																										1ST AND 2ND ORDERS																									
<p>CA GOLUBEV, A.</p>																										<p>30</p>																									
<p>Compounding of benzene-resisting and oil-resisting rubber mixtures. V. Kartsev and A. Golubev. <i>J. Rubber Ind. (U.S.S.R.)</i> 10, 301-11 (1935).—A study of the swelling of rubber in org. solvents and the effect of the compn. of the rubber on its resistance to swelling. Mixts. contg. different ingredients were immersed in benzine (for 34 hrs.) and in lubricating oils (for 48 hrs.); the extent of swelling was detd. and expressed as the percentage gain in wt. The ingredients tested included "GRT" black, "Maikop" black, kaolin, ZnO, CaO, MgCO<sub>3</sub>, MgO, chalk, lithopone, talc, infusorial earth, S, horn dust, mica, graphite, animal glue, etc. The results of these tests are given in 48 diagrams and show that to prep. benzene- and oil-resisting rubber mixts. the S should not exceed 10-15%; the addn. of "GRT" black, Sc, "Neosone D" and "Agerita" gives excellent results; and lime, lithopone, infusorial earth and horn dust are of no benefit.</p>																										<p>James Sorrel</p>																									
<p>ASTM-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																										<p>ASTM-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																									

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PROCESSING AND PROPERTY INFO

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COLUBEV, A. A.

B-1-8

Acetylene in air-compression and distillation plants. B. N. KASANOVIK and A. A. COLUBEV (J. Chem. Ind. Russ., 1937, 14, 251-257).—Presence of  $C_2H_2$  in liquid air or  $O_2$  is due to contamination of the air or to use of unsuitable lubricants in the compression units. H. T.

ASAC-11A METALLURGICAL LITERATURE CLASSIFICATION

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<p>GOLUBEV, A. A.</p> <p>CA</p>		<p>19</p>	
<p>Changing a section of the main vault of a tank furnace in the course of hot repairs. A. A. Golubev, A. A. Tyagunov, and I. K. Zyukin. <i>Nekol'snye kovan. Prom.</i> 1944, No. 7/8, p. 10; <i>Ceram. Abstracts</i> 1946, 101 (in <i>J. Am. Ceram. Soc.</i> 29, No. 6). The time of service of a tank furnace is detd. mostly by the wear of the main vault. Ordinarily, when the vault requires repair the furnace must be stopped and cooled before it can be repaired. At the</p>		<p>Onsev glass plant, for the first time, a section of the vault was completely replaced without stopping the furnace. The length of the furnace is 27 m. and the width of its tank is 8 m. The damaged section was the fourth. The third, fourth, and fifth pairs of burners were turned off. The temp. of the furnace dropped to 700° to 800°. The temp. of the fourth pair of burners were taken down, and arches at the fourth pair of burners were turned into the furnace to cool the air was supplied therethrough into the furnace channel of glass. Meanwhile, the temp. in the Fourcous channel was maintained at its normal level. While this section of the furnace was cooling, repairs were made for building the new section. When all the preparatory work was done and the temp. of the glass decreased to 700°, the damaged section was collapsed directly onto the glass. At that time the glass had cooled to such extent that the dropped brick did not stick to it. Asbestos sheets were then inserted to fence off the third and fifth sections. The temp. in the area of the collapsed section dropped to 140°. This permitted entry into the section to remove the debris and clean it out. Rebuilding the new fourth section required 8 hrs. During this time the temp. at the first and second pair of burners was kept at 700° and at the sixth and seventh pair at 800°. The temp. in the regenerators was kept at 300° for air and 340° for gas; the stack temp. was 200°. Neg. pressure was maintained in the furnace throughout this work. When the rebuilding of the fourth section was finished the temp. underneath it was about 350°. Gradually the temp. of the rebuilt section was raised and equalized with that of the rest of the furnace. The entire furnace was then reheated by raising the temp. up to 900° at a rate of 10° per hr., and from 900° to 1420° at 20° per hr. The reheating of the furnace was accomplished in 50 hr. The entire work took 6 days. The details of the work are described. M. P. R.</p>	
<p>ASB-554 METALLURGICAL LITERATURE CLASSIFICATION</p>		<p>221181 ONE ONE 111</p>	

GOLUBEV, A.A.

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**Rapid repair of tank furnaces and Pourcault channels.**  
A. A. GOLUBEV AND D. I. PORTUGALOV. *Svetlo i Keram.*, 3  
[4] 1-3 (1948).--Semicold repair of tank furnaces has been  
in practice in many glass plants in the Soviet Union since  
1944. Practice has shown that the service period between  
cold repairs can be raised to 30 to 35 months, with two  
semicold and two or three hot repairs being made during  
this period. In making semicold repairs the feeding of gas  
into the worn section of the tank furnace is discontinued by  
covering the burners, and this section is separated from the  
undamaged sections by means of an asbestos sheet which is  
lowered into the furnace. The temperature in the section  
to be repaired drops rapidly to 30° to 60°, which is satis-  
factory for working. Semicold repairs are particularly ad-  
vantageous when it is not necessary to repair the gas and  
smoke passages, air and gas valves, bottom of the tank  
furnace, and bridge structures in the Pourcault channel.  
With these it is necessary to stop the gas completely and  
stop the furnace and Pourcault channel for cold repairs.  
Examples are given of rapid starting up after repairs with-  
out destruction of refractories. B. Z. K.

ASH-51A METALLURGICAL LITERATURE CLASSIFICATION

GOLUBEV, A.; LEONOV, K.

Methods of speedy repair of glass tank furnaces. Tr. from the Russian.

p. 203  
Vol. 6, no. 9, Sept. 1955  
SZKLO I CERAMIKA  
Warsaw

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 3  
March 1956

GOLUBEV, A.A.; LEONOV, K.F.

There should be an improvement in the design of tank furnace threats.  
Stek 1 ker. 12 no.11:10-15 N '55. (MIRA 9:1)

1.Soyuzsteklostroy.

(Glass manufacture) (Furnaces)

5(3)

AUTHORS:

Zabotin, K. P., Morozov, L. A., Kryukov, I. V., Frantinskiy, A. A., Golubev, A. A.

06211

80V/64-59-6-6/28

TITLE:

Continuous Method of the Copolymerization of Butyl Acrylate With Acrylonitrile in Emulsions

PERIODICAL:

Khimicheskaya promyshlennost', 1959, Nr 6, pp 486 - 487 (USSR)

ABSTRACT:

The product obtained by the copolymerization mentioned in the title is used in the manufacture of artificial leather, in leather dyeing, etc. Publications mention a semi-continuous method (Ref 1) for this polymerization. Here, a continuous method is described, which has already been proposed for the copolymerization of divinyl with styrene (Ref 2). From the scheme given (Fig ) it is seen that a tube reactor is used. The following composition in parts by weight is used as reaction mixture: butyl acrylate: 54, "sulfonol" (emulsifier): 2, ammonium persulfate (as initiator): 0.1, acrylonitrile: 16, water: 100. The reaction mixture was introduced into the reactor at a rate of 1.2 l/h and 1.8 l/h respectively, and the copolymerization was carried out at approximately 80°. In order to prevent

Card 1/2

GOLUBEV, A.A., red.; OVOD, M.Ye., red.; BORISOV, B.L., tekhn. red.

[Manual on the construction and repair of tank and pot glass furnaces] Rukovodstvo po stroitel'stvu i remontam steklovarnykh, vannyykh i gorshkovykh pechei. Pod red. A.A. Golubeva. Moskva, Izd. PKB GISTekla, 1960. 77 p. (MIRA 15:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut stekla.  
(Glass furnaces)

ABRAMOVA, Zh.I., kand. med. nauk; GADASKINA, I.D., prof.; GOLUBEV, A.A., kand. med. nauk; DANISHEVSKIY, S.L., prof.; ZIL'BER, Yu.D., kand. med. nauk; LAZAREV, L.N., kand. khim. nauk; LEVINA, E.N., doktor med. nauk; LOYT, A.O.; LYUBLINA, Ye.I., doktor biol. nauk; LYKHINA, Ye.T., kand. biol. nauk; MINKINA, N.A., kand. med. nauk; RUSIN, V.Ya., kand. med. nauk; SALIYAMON, L.S., kand. med. nauk; SPERANSKIY, S.V., TRAKHTENBERG, I.M., dots.; FILOV, V.A., kand. biol. nauk; TSIRK, K.G., kand. med. nauk; CHEKUNOVA, M.P., kand. med. nauk; GRIVA, Z.I., red.; LAZAREV, N.V., zasl.deyat.nauki, prof., red.; LEVIN, S.S., tekhn. red.; BASINA, M.Z., tekhn. red.

[Toxic industrial substances; handbook for chemists, engineers and physicians] Vrednye veshchestva v promyshlennosti; spravochnik dlia khimikov, inzhenerov i vrachei. Izd.4., perer.i dop. Leningrad, Goskhimizdat. Pt.2.[Inorganic and metallo-organic compounds] Neorganicheskie i elementorganicheskie soedineniia. 1963. 619 p. (MIRA 17:2)

ACC NR: AT7000309

N/)

SOURCE CODE: UR/0000/65/000/000/0515/0526

AUTHOR: Golubev, A. A.

ORG: None

TITLE: Experience and prospects for use of synthetic materials in marine structures, machinery and fishing equipment for ships of the commercial fishing fleet

SOURCE: Nauchno-tekhnicheskaya konferentsiya po razvitiyu flota rybnoy promyshlennosti stran-chlenov SEV. 2d, Leningrad, 1964. Rybolovnyy flot (Fishing fleet); sbornik trudov konferentsii, v. 1. Leningrad, Izd-vo Sudostroyeniye, 1965, 515-526

TOPIC TAGS: shipbuilding engineering, fishing ship, synthetic material, economic organization

ABSTRACT: Dissatisfaction with demonstrated performance characteristics of materials traditionally used in shipbuilding, such as steel and light alloys, has prompted the introduction of synthetic materials in the commercial fishing shipbuilding industry. The properties of certain of these synthetics are listed and their advantages are discussed. Specific examples are given of the proposed uses of synthetic materials. The scientific and industrial tasks facing the member nations of the Council of Mutual Economic Assistance in connection with the exploitation of synthetics in shipbuilding are given special attention. Orig. art. has: 9 figures and 3 tables.

SUB CODE: 13,11/SUBM DATE: 15Oct65

Card 1/1



GOLUBEV, A.A.

Variation of the physical properties of basic and ultrabasic  
rocks with depth. Trudy VSEGEI 104:152--157 '64.

(MIRA 28:1)

GOLUBEV, A.A., inzh.

Heat and fire resistance of plastics. Sudostroenie 30 no.8:33-36

Ag '64.

(MIRA 18:7)

GOLUBEV, A.A.; ZINKEVICH, O.S.; MINCHENKOV, Yu.P.

Develop a state standard for tubular springs. Standartizatsia 29  
no.11:56-57 N '65 (MIRA 19:1)

ZARINSKIY, V.A.; FROLKINA, V.A.; GOLUBEV, A.D.

Measurement of the  $p^H$  by means of electrodes made of lithium glass. Zav.lab. 27 no.2:223-225 '61. (MIRA 14:3)

1. Institut geokhimii i analiticheskoy khimii imeni V. I. Vernadskogo AN SSSR.  
(Hydrogen-ion concentration)

GOLUBEV, A.D.; SHATS, S.Ya.

Regularities in the characteristics of tubes with secondary  
emission. Izv. vys. ucheb. zav. i prib. 6 no.5:11-19 '63.  
(MIRA 16:11)

1. Rekomendovana Leningradskoy ~~nauchno~~-inzhenernoy krasno-  
znamennoy akademiyey imeni A.F. Mozhayskogo.

GOLUBEV, A.D.; SHATS, S.Ya.

Design of amplifiers using a secondary emission tube. Izv.vys.  
ucheb.zav.; prib. 6 no.6:3-9 '63. (MIRA 17:3)

1. Rekomendovana Leningradskoy Krasnoznamennoy voyenno-vozdushnoy  
inzhenernoy akademiye imeni A.F.Mozhayskogo.

GOLUBEV, A.F., inzh.; LOGINOV, I.G., traktorist.

Automatic driving of the S-80 tractor. Mekh. i elek. sets.  
sel'khoz. 17 no.1:46-48 '59. (MIRA 12:1)

1. Pavlodarskoye oblastnoye upravleniye sel'skogo khozyaystva  
(for Golubev) 2. Sevkhaz "Irtyskiy," Pavlodarskoy oblasti  
(for Loginov).

(Tractors)

GOLUBEV, A.G.; STEPANOVA, V.N.; YURGENEV, L.S.

Gas-heated, single-retort gas generator. Avt. prom. 27 no. 4:42  
Ap '61. (MIRA 14:4)

1. Nauchno-issledovatel'skiy tekhnologicheskii institut  
avtomobil'noy promyshlennosti.  
(Gas producers)



GOLUBEV, A. I.

"New Method of Guiding Large Ships through Locks," Rech. transp., 12, No.4, 1952

GOLUBEV, A-1.

3-58-2-25/33

AUTHORS: Gorokhov, V.M., Professor, and Rozhdestvenskiy, B.P. Dotsent

TITLE: A Conference of Instructors in Pedagogics and Psychology  
(Soveshchaniye prepodavateley pedagogiki i psikhologii)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, # 2, page 78 (USSR)

ABSTRACT: From 17 to 19 October 1957, a scientific-practical conference of instructors of the chairs of pedagogics and psychology of the universities and pedagogical institutes in the Middle Volga and the Urals region was held in Kazan'. Representatives of 3 universities and 9 pedagogical institutes, directors and chiefs of the teaching sections of secondary schools, collaborators of the Tatarskiy institut usovershenstvovaniya uchiteley (Tatar Institute for the Development of Teachers), and others participated in the conference work.

At the plenary sessions and meetings of the 3 sections - pedagogical, psychological and history of pedagogics - 25 reports on various questions of development of the Soviet school were heard. M.F. Shabayeva, Senior Scientific Collaborator of the APN RSFSR, submitted a report on the theme "The Soviet School and Pedagogics Over the 40 Years of Soviet Power". Candidates of Pedagogical Sciences N.A. Polovnikova

Card 1/2

A Conference of Instructors in Pedagogics and Psychology

3-58-2-25/33

and A.I. Golubev reported on the organization of polytechnical education in the Tatar and Mordvinian Autonomous Republics. Candidate of Pedagogical Sciences B.P. Rozhdestvenskiy and G.A. Petrova spoke of the organization of aesthetic education in the schools of the Tatar Autonomous Republic; Candidate of Pedagogical Sciences A.A. Vanshteyn discussed the mutual relation between theory and practice in teaching pedagogics. The Kazan' conference decided to establish a permanent organizational bureau for preparing and conducting conferences.

ASSOCIATION: Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical Institute); Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova (Lenina) (Kazan' State University im.V.I.Ul'yanov (Lenin))

AVAILABLE: Library of Congress

Card 2/2

GOLUBEV, Aleksey Ivanovich; RUDNEV, S.S., kand. tekhn. nauk, retsenzent; KARGANOV,  
V.G., inzh.red.; DOBRITSYNA, R.I., tekhn.red.; GORDEYEVA, L.P., tekhn.red.

[Labyrinth pumps for the chemical industry] Labirintnye nasosy dlia  
khimicheskoi promyshlennosti. Moskva, Gos. nauchno-tekhn. izd-vo  
mashinostroit. lit-ry, 1961. 72 p. (MIRA 14:8)  
(Pumping machinery)

GOLUBEV, A.I.

Main trends for the development of public health in 1959-1965. Zdrav.  
Ros. Feder. 2 no.2:3-9 P '58. (MIRA 11:3)

1. Nachal'nik Planovo-financovogo upravleniya Ministerstva zdрави-  
okhraneniya SSSR.  
(PUBLIC HEALTH)

On the Unsteady Motion of a Viscous Incompressible Fluid Between Closely Located Moving Surfaces	25
On the Motion of a Viscous Incompressible Fluid in Short Bearing Gaps in the Laminar and Turbulent Flow Regimes	30
Investigation of Friction Processes in Heavily Loaded Sliding Bearings of Rolling Mills	17

**FOREWORD:** This collection of articles is intended for practicing engineers and research scientists.

**CONTENTS:** The collection, published by the Institute of Machine Building of the USSR Academy of Sciences, is intended for the III Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines) which was held April 9-15, 1958. Problems discussed were in 3 main areas: 1) Hydrodynamic Theory of Lubrication and Friction Bearings (Chairman: Ye. M. Ost'yar, Doctor of Technical Sciences); 2) Lubrication and Lubricant Materials (Chairman: G. V. Vinogradov, Doctor of Chemical Sciences); 3) Dry and Boundary Friction (Chairman: B. V. Deryagin, Corresponding Member of the USSR Academy of Sciences). The collection is divided into three parts: 1) Friction and Lubricant Materials (Chairman: M. M. Krushchov, Doctor of Technical Sciences); 2) Friction and Antifriction Materials (Chairman: I. V. Krasel'skiy, Doctor of Technical Sciences); and 3) Friction and Antifriction Materials (Chairman: M. M. Krushchov, Doctor of Technical Sciences). Chairman of the general assembly (on the first and last day of the conference) was Academician A. A. Blagonravov, L. Yu. Pruzhanskiy, Director of Technical Sciences; two scientific secretaries, the transactions of the conference were published in 3 volumes of which the present is the third. This volume contains articles concerned with the hydrodynamic theory of lubrication, sliding bearings, and lubrication materials. Among the topics covered are: modern developments in the hydrodynamic theory of lubrication under various conditions, the mechanics of lubrication under various conditions, the design of bearings for different applications, the theory and practical applications of lubricating materials, including aerosol-plastic lubricants, electric generators and other heavy machine bearings for turbo-machinery, the effects of additives, operating and environmental conditions, corrosion, and accelerated wear testing. Many personal comments are mentioned in the text. References accompany most of the articles.

**SPONSORING AGENCY:** Akademiya nauk SSSR, Institut mashinovedeniya, Respublikanskaya nauchnaya i issledovatel'skaya laboratoriya "Slip i treniye" (Republican Scientific and Research Laboratory "Slip and Friction and Lubricant Materials") Moscow, 122040. Printed: (Series: 1st: 1958, v. 3)

**SPONSORING AGENCY:** Akademiya nauk SSSR, Institut mashinovedeniya, Respublikanskaya nauchnaya i issledovatel'skaya laboratoriya "Slip i treniye" (Republican Scientific and Research Laboratory "Slip and Friction and Lubricant Materials") Moscow, 122040. Printed: (Series: 1st: 1958, v. 3)

PRICE 1 BOOK REPRODUCTION 507/5055

Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh, 3d, 1958.

Oldrolanitskaya teoriya gnazki. Oport skol'zheniya. Sostav sliz i treniya. Materialy i issledovaniya (Lubrication and Friction and Lubricant Materials) Moscow, 122040. Printed: (Series: 1st: 1958, v. 3)

**SPONSORING AGENCY:** Akademiya nauk SSSR, Institut mashinovedeniya, Respublikanskaya nauchnaya i issledovatel'skaya laboratoriya "Slip i treniye" (Republican Scientific and Research Laboratory "Slip and Friction and Lubricant Materials") Moscow, 122040. Printed: (Series: 1st: 1958, v. 3)

GOLUBEV, A.I.

GOLUBEV, A.I.

28(5) PHASE I BOOK EXPLOITATION SOV/2632

Academy of Sciences USSR. Institut mashinovedeniya  
Treniye i iznos v mashinakh; sbornik XII (Friction and Wear  
in Machines; Collection 12) Moscow, Izd-vo AN SSSR, 1958.  
334 p. Krata slup inserted. 8,000 copies printed.  
Ed.: M.M. Khrushchov, Professor; Ed. of Publishing House:  
M.A. Babichev, Tech. Ed.: Ye.V. Zelenkov, Ed. of  
Board; Ye.M. Out'yar, Professor, A.K. Dyachenko, Professor,  
I.V. Kragelskiy, Professor, A.D. Murzin, Candidate of Technical  
Sciences, L.R. Fridman, Candidate of Technical  
Sciences, and M.M. Khrushchov, Professor.  
PURPOSE: This book is intended for scientists, engineers, and  
technicians in the field of machine manufacture and operation,  
and for instructors in schools of higher education (vuses).

CONTENTS: This collection of articles presents the results  
of new investigations in the field of wear, friction, and  
lubrication. The subjects discussed include structural  
changes in the surface layer of metals in friction, the  
development of friction-brake materials, and theoretical  
investigations in the field of dry friction and friction  
with boundary and complete friction. For a bibliography of  
each article see the Table of Contents. For a bibliography of  
Soviet and non-Soviet materials on friction, wear and lubri-  
cation, pp. 334-355 prepared by Ye.O. Vlod't is included.

181  
Golubev, A.I. Effect of Heat on Fluid Friction in the Non-  
loaded Lubricating Film

The author presents the results of an experiment  
to determine the lubricating film-boundary temperature  
in a coaxially arranged shaft and bushing at various  
clearances and using two types of lubricating oil.  
These results are compared with theory allowing for  
the relationship of temperature and viscosity.

205  
Golubev, A.I. Plane Steady Flow of a Viscous Incompressible  
Fluid with Varying Coefficient of Viscosity in a Bearing

The author presents a hydrodynamic theory of the  
lubrication of infinitely long bearings taking into  
account the hyperbolic relationship between temperature  
and viscosity.

224  
Pargin, D.P. Calculating Temperature Distribution Through-  
out the Thrust Bearing Plate of a Hydrogenerator

The author presents a method for calculating  
temperature distribution throughout the thrust-bearing  
plate. According to the author, this method is  
based on a number of assumptions. The method makes it  
possible to determine transient heat-conduction  
calculations of temperature distribution in bodies of intricate shape  
and with complex boundary conditions. The method insures  
a sufficient degree of accuracy.

242  
Korochinskiy, M.V. Possible Boundary Conditions of  
Hydrodynamic Friction in a Four-ball Lubricant Testing  
Machine

The author presents results of theoretical inves-  
tigations of hydrodynamic lubrication regimes.

266  
Korochinskiy, M.V. Corrections for the Article "Stability  
of the Equilibrium Position of a Pin on Lubricating Film"  
(Published in the issue II of "Treniye i iznos v mashinakh",  
pp. 264-323)

The author presents results of theoretical inves-  
tigations of hydrodynamic lubrication regimes.

268  
Korochinskiy, M.V. Friction Conditions in Testing Oils  
in a Four-ball Machine

The author presents results of experiments  
conducted to determine the lubricating conditions  
and type of friction existing between ball contacts  
in four-ball testing-machines.

295  
Lyubarskiy, I.M., A.P. Lyubchenko, and V.O. Kostyrenko. On  
the Performance of Sulfurized Lubricants

Results of an investigation of the performance of a  
sulfurized lubricant containing niger oil with a  
2-3 percent sulfur content are presented.

GOLUBEV, A.I.

APPROVED FOR RELEASE: 06/13/2000

Effect of the heat on the lubricant layers, Tren. i izn. mash. no. 12:181-204 '58. (MIRA 11:8)  
(Lubrication and lubricants--Testing)

~~GOLUBEV, A.I.~~

Plane steady flow in bearings of viscous noncompressible fluids  
having variable coefficient of viscosity. Tren. i izn. mash.  
no. 12:205-223 '58. (MIRA 11:8)

(Bearings(Machinery))  
(Lubrication and lubricants)



KOROVCHINSKIY, Mikhail Viktorovich; KHRUSHCHOV, M.M., prof., doktor  
tekhn.nauk, retsenzent; GOLUBEV, A.I., kand.tekhn.nauk, red.;  
TAIROVA, A.L., red.izd-v6; SOKOLOVA, T.P., tekhn.red.

[Theoretical basis of sliding bearing performance] Teoreti-  
cheskie osnovy raboty podshipnikov skol'zheniia. Moskva, Gos.  
nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 402 p.  
(MIRA 12:12)

(Bearings (Machinery))

GOLUBEV, A.I.; PAVLOV, B.V., inzh., retsenzents; KARGANOV, V.G.,  
inzh., red.; MAKAROVA, L.A., tekhn. red.

[Modern seals for rotating shafts] Sovremennye uplotne-  
niia vrashchaiushchikhsia valov. Moskva, Mashgiz, 1963.  
214 p. (MIRA 17:2)

GOLUBEV, A. I.

"Development of Flow and Thermal Effect During Liquid Friction." Cand Phys-Math Sci, Moscow State U, Moscow, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)  
SO: Sum. No. 556, 24 Jun 55

32(3)

SOV/112-59-3-5115

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 3, p 117 (USSR)

AUTHOR: Golubev, A. I.

TITLE: Modernization of VAB-2-2000/30 (Modernizatsiya VAB-2-2000/30)

PERIODICAL: Elektr. i teplovozn. tyaga, 1957, Nr 12, pp 7-10

ABSTRACT: A new construction, a supply scheme, and a control scheme of the VAB-2-2000/30 high-speed circuit breaker were developed at the "Uralelektroapparat" plant. The time of current drop from full load to zero is 0.003-0.007 sec for railroad-type converter installations. The minimum time from the moment of tripping pulse to opening of the VAB-2-2000/30 contacts was 0.002 sec for the new construction.

K.V.A.

Card 1/1

GOLUBEV, A.I., kand.fiz.-mat.nauk

Butt sealing. Trudy VIGM no.24:102-124 '59. (MIRA 12:8)  
(Sealing (Technology))

2311/6  
S/184/61/000/002/001/008  
A110/A033

5.1180

AUTHORS: Golubev, A. I., Candidate of Physics and Mathematics; Freydisman,  
O. M., Engineer

TITLE: Labyrinth pumps for corrosives

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 2, 1961, 9 - 12

TEXT: The article deals with low capacity and high pressure labyrinth pumps designed and tested at the VIGM (All-Union Institute of Hydraulic Machinery), by A. I. Golubev (author's certificate No.126748, June 16, 1958). The pumps are based on a multiple thread screw which rotates inside a bush with reversed multiple threading. Labyrinth pumps are similar to pumps working on the spiral self-lubricant endless screws principle, the only difference being that screw and bush are multiple threaded. Their operation is analogous to vortex and labyrinth packing and they operate in low viscosity fluids. Experiments proved that the threaded bush operating in water increases the pressure 7 - 10 times. The efficiency of labyrinth pumps is similar to that of vortex pumps and superior to single stage centrifugal pumps operating in underload conditions. A further common feature between labyrinth and vortex pumps is the marked dependence of their performance

Card 1/8

23146  
S/184/61/000/002/001/008  
A110/A033

Labyrinth pumps for corrosives

on their radial and end clearances respectively. The advantages of labyrinth pumps are: simple shape of all metal and non-metal components; absence of mechanical friction between screw and bushing; flexibility of construction apparent in the proportionality between pressure and the length of flow-area, and higher suction power. Labyrinth pumps were included in the nomenclature of "Wing Pumps for the Chemical Industry. Standard Series". In accordance with this nomenclature the Tsentral'noye konstruktorskoye byuro gidromashinostroyeniya, TsKB GM (Central Design Office of Hydraulic Machinery) developed about ten labyrinth pump models for test purposes. Some of these have already passed tests and were sent to production plants. Beside the TsKB GM, the following organizations have participated in the project: Shchelkovskiy nasosnyy zavod (Shchelkov Pump Plant); UkrNIIMMASH and the VIGM. Figure 1 shows a 1.5K-2P (1.5Kn-2P) labyrinth pump made of faolite "A" plastics and intended for the handling of corrosives, the pump works at a pressure of 65 m liquid column and 1.8 l/sec. capacity. Screw (2) and bush (3) have two symmetric threadings which results in a dual suction and relieves the rotor from the axial force, apart from ensuring satisfactory performance of the gland under the suction pressure. Figure 2 shows the performance of such a pump with a screw diameter of 100 mm. The 1Kn-3-B (1KnP-3-B) labyrinth type immersion pump

Card 2/8

23146

S/184/61/000/002/001/008  
A110/A033

Labyrinth pumps for corrosives

used for hydrofluoric acids works at a pressure of 10m of liquid column and 1 m<sup>3</sup>/h cap. and is shown in Figure 3. Suction pipe (1), screw (2) and bushing (3) are made of Monel metal. The pump has graphite bearing bushings (5) operating on acid lubrication and stuffing box (7) for the sealing liquid. Figure 4 shows a 1.5X-2A-2 (1.5Kh-2A-2) labyrinth pump used for hydrocarbons with resin admixtures at 180 - 200°C operating at a pressure of 65 m liquid column and 1.8 l/sec. capacity. The screw has two symmetrical threads and relieves the rotor from axial stresses. The male and female threads of the screw operate jointly with static threads of suction pipe (1), gland body (7) and bushings (3 and 5). The main parts are made of carbon steel. As the pumped liquid tends to crystallize at normal temperature, the pump casing is equipped with pre-heating jacket (4). The escape of poisonous gases is prevented by stuffing boxes (8 and 11) and hermetical connector (9). All three pumps have been designed by the Central Designing Office of Hydraulic Machinery. Figure 5 shows a 1.5X-2M (1.5Kh-2I) labyrinth pump made of acidproof 3M629 (EI629) steel and designed at the Shchelkov Pump Plant for operation with corrosive hydrocarbons. The pump operates at a pressure of 100 m liquid column and a capacity of 3 m<sup>3</sup>/h. Contrary to pumps above described bearing bush (2) relieves the rotor from axial stresses. The intake is radial, the pressure axial and the pressure pipe is near the outlet. Due to the

Card 3/8



23146

S/184/61/000/002/001/008'  
A110/A033

X

Labyrinth pumps for corrosives

described layout of suction and pressure pockets the gland takes up the intake pressure only. 1.5Kh-2I labyrinth pump replaces three-stage centrifugal pumps. Its characteristics are the following: the maximum efficiency is 26% while the reference point efficiency is 22 %. In view of the low delivery, these two types of pumps are similar in efficiency, but labyrinth pumps have a higher efficiency. Besides, vortex pumps cannot be made entirely of EI629 steel, whose toughness during friction in the face clearances leads to galling and breaking of the operating organs. Experimental tests on 1.5Kh-2I pumps are nearly completed after which the pump will be sent to a plant. Several pilot models of 1KhP-3B and 1.5Kh-2A-2 pumps are still under construction; one passed tests and is now used in the phenolacetone production. The 1.5Kh-2P pump is undergoing service tests with 20 % hydrochloric acid. The above mentioned designs do not exhaust all possibilities; analogous operating principles can be applied in the design of dynamic rotary shaft packings, e.g., for pumps delivering butadiene rubber. These so-called labyrinth impellers would prove particularly efficient at high velocities of the rotary shaft, as the pressure drop transmitted to them is proportional to the circumferential velocity square. There are 5 figures.

Card 4/8

GOLUBEV, Aleksandr Ignat'yevich; 'ETIK, I.V., red.

[High-speed automatic switches] Bystodeistvuiushchie  
avtomaticheskie vykliuchateli. 2., perer. izd. Moskva,  
Energia, 1964. 239 p. (KIR: 17:10)

GOLUBEV, Aleksandr Ignat'yevich; ZHDANOV, G.B., redaktor; LARIONOV,  
G. Ye., tekhnicheskii redaktor.

[High-speed automatic switches] Bystrodeistvuiushchie avtomati-  
cheskie vyklinchateli. Moskva, Gos.energ.izd-vo, 1955. 191 p.  
(Electric switchgear) (MLRA 8:9)

ASTAKHOV, A.G.; VLASOV, V.W.; ~~GOLUBEV, A.I.~~; GRISHENKO, P.I.;  
FEDOROVSKIY, N.W.

A system for the automatic control of fuel proportioning  
processes in sintering plants. Met. i gornorud. prom. no.4:  
12-13 JI-ag '65. (MIRA 18:10)

\*Increasing the Chemical Stability of Copper by Passivation in Solutions of Chromates. (I. V. Akimov and A. I. Golubev (Zhur. Priklad. Khimii, *— Applied Chem.*), 1939, 12, 1620-1629 (in Russian); *C. Ab.*, 1940, 34, 6180). — [in Russian.] The best passivating solutions are: (i)  $0.5N-K_2Cr_2O_7$  or  $0.125N-CrO_3$ , exposure 1 hr.; and (ii)  $N-K_2Cr_2O_7$  +  $0.01N-CrO_3$ , exposure 1 hr. The corrosion of copper after such passivation decreases sharply in air containing sulphur dioxide, and in solutions of 3% NaCl, 3% NaCl + 0.01N-NaOH, 3% NaCl + 0.01N-HCl, and 0.1N-H<sub>2</sub>SO<sub>4</sub>. The chemical stability of brass improves also after the above treatment, particularly after treatment with  $N-K_2Cr_2O_7$  +  $0.01N-CrO_3$ . The stability of aluminium bronze increases after treatment with a passivating solution of  $0.5N-K_2Cr_2O_7$  +  $0.125N-CrO_3$ .

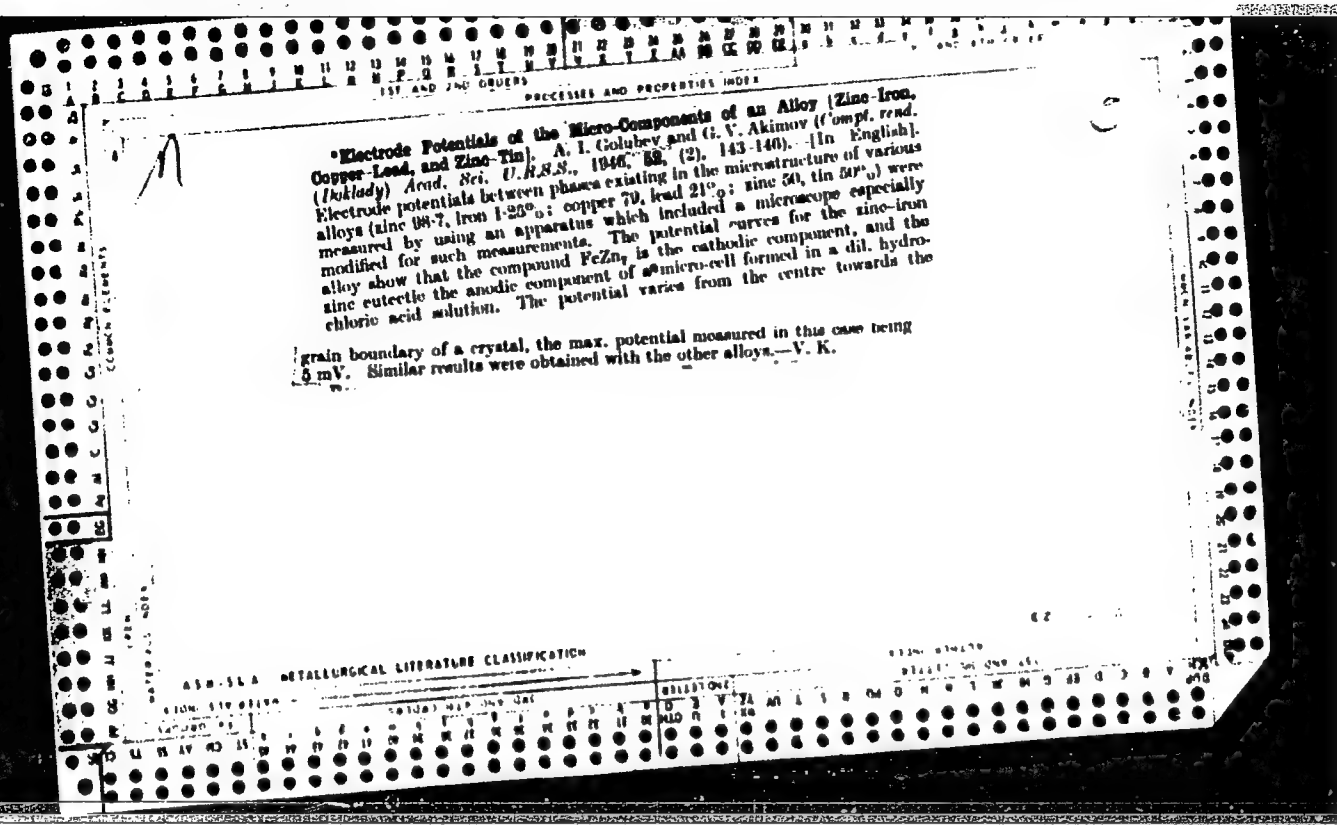
GOLUBEV, A. I.

Moscow Inst. Non-ferrous Metals and Gold, Lab. Corrosion and Electrochemistry, (-1946-)

"A Study of the Corrosion Processes on a Model Local Element. I."

Zhur. Fiz. Khim., No. 3, 1946.

1ST AND 2ND COLUMNS		PROCESS AND PROPERTIES INDEX		100 AND 11TH COLUMNS	
<p><i>Investigation of the Processes of Corrosion on a Model of a Local Element.</i>  <b>L. The Field in the Electrolyte Above Short-Circuited Models Situated in One Plane.</b> (I. V. Akimov and A. I. Ushakov (Zhur. Fiz. Khim., 1946, 22, (3), 303-308).—[In Russian]. A. and U. studied the distribution of the equal-potential surfaces and lines of force above short-circuited electrodes situated in one plane. Electrodes of copper and zinc were investigated in a solution of 3% NaCl + 0.01N HCl, and electrodes of copper and magnesium in 0.1N NaCl solution. As a rule the field of the local element was distorted, being displaced in the direction of the anode or cathode in accordance with their polarization characteristics and the ratio of their areas. The general potential was not equal to the boundary potential; it was electropositive to the latter when displacement of the field was in the direction of the anode and electro-negative when in the direction of the cathode. The greater the displacement of the field, the greater was the difference between the general and boundary potentials. The height of the field was equal to approx. half the sum of the lengths of the anode and cathode.—N. A.</p>					
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					
<p>FROM 171000000 171000000 171000000 171000000 171000000 171000000</p>					





GOLUBEV, A. I.

May 1947

USSR/Chemistry - Zinc, Corrosion of  
Chemistry - Electric Charges

"Microgalvanic Elements on the Surface of Corroding Zinc," G. V. Akimov, Corr Mem,  
Inst Phys Chem, Acad Sci USSR; A. I. Golubev, All-Union Sci Res Inst Aviation Materials,  
3 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVI, No 6

Describes experiments which give full confirmation of hypothesis made by De La Rive in  
1830 on action of microelements.

PA 58T5

GOLUBEV, A. I.

USSR/Metals  
Aluminum Alloys  
Corrosion

May 1948

"Intercrystalline Corrosion of Aluminum Alloys," A. I. Golubev, All-Union Inst Avn Materials, Moscow, 11 pp

"Zhur Fiz Khim" Vol XIII, No 5 - pp. 591-601

Corrosion resistance of compound  $\text{CuAl}_2$ , produced during the aging of aluminum, was investigated and shown to be considerably lower than that of pure aluminum. Results obtained enable mechanism of intercrystalline corrosion of duralumin to be looked on as dissolving of aluminum from intermetallic compound; copper remains and acts as an anode. Article is illustrated with microphotographs and thermal equilibrium diagrams. Submitted 14 Aug 1947. -555

68794

14

1ST AND 2ND SECTIONS  
PROCESSES AND PROPERTIES INDEX

**B**

**Intermetallic Corrosion of Aluminum Alloys.**  
**2. Alloys of the System Al-Zn-Mg. (In Russian) A. I.**  
**Golubev, Zhurnal Fizicheskoi Khimii (Journal of Physi-**  
**cal Chemistry), v. 23, Sept. 1949, p. 1116-1126.**

Corrosion resistance of the intermetallic compound  
 MgZn<sub>2</sub> precipitating along the grain boundaries in  
 alloys of the above system was investigated. On the  
 basis of the results, which are tabulated and charted,  
 a theory of corrosion cracking of these alloys is  
 developed.

COMMON ELEMENTS

COMMON VARIANTS INDEX

638-51A METALLURGICAL LITERATURE CLASSIFICATION

GROUPS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

GOLUBEV, A. I.

"Investigation of Galvanic Microcells on the Surface of Corroding Alloys." Thesis for degree of Dr. Technical Sci. Sub 5 Jun 50, Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin.

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering IN Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950.

GOLUBEV, A.I.

Season Cracking of Aluminum Alloys.

"Research in Corrosion of Metals (Issledovaniya Po Korrosii Metallov)".  
Published by--Inst. of Physical Chemistry, (USSR Academy of Sciences, Moscow-1951.  
Translation---ATIC-79062-D  
F-TS-0030.-A/V.

. . . GOLUBEV, A.I.

RUSSIA. MINISTERSTVO AVIATIONNOY PROMYSHLENNOSTI.  
KORROZIONNYE PROTSESSY NA REAL'NYKH INTERELEMENTAKH (CORROSION PROCESSES  
ON REAL MICRO ELEMENTS, BY) A.I. GOLUBEV. MOSKVA, GEORGINIZ, 1953.  
121 P. ILLUS., DIAGRS., TABLES  
"LITERATURA": P. 121 - (122)

SO: H/5  
615.8  
.R91

USSR/Solid State Physics - Phase Transformations in Solids, E-5

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34744

Author: Golubev, A. I.

Institution: None

Title: Intercrystallite Corrosion and Corrosive Cracking of Aluminum Alloys

Original Periodical: Korroziya metallov i metody bor'by s ney, Moscow, Oborongiz,  
1955, 257-270

Abstract: None

/ of /

- 1 -

GOLUBEV, A. I.: TUMANOV, A. N.: FILIPPOVA, A. P.,

"Behavior of Structural Components of Aluminum Alloys in the Process of Chemical Oxidation and Anodizing in Sulfuric Acid," and with MAKAROV, N. A., SAMOKHVALOV, L. N. :

"Filling the Pores of Oxide Films Obtained by Anodic Oxidation of Aluminum and Its Alloys, " Korroziya i azshchita metallov (Corrosion and Protection of Metals), Moscow, Oborongiz, 1957. 366 p.

PURPOSE: This book is intended for engineering, technical, and scientific personnel, at industrial plants, research institutes, and design offices working in the field of corrosion-protection of stainless steel, high-strength structural steel, and light alloys.



GOLUBEV, A. I.; CHEBOTAREVA, I. I.;

"Investigation of the Processes of Anodizing Aluminum Alloys in Oxalic Acid,"  
Korroziya i azshchita metallov (Corrosion and Protection of Metals), Moscow,  
Oborongiz, 1957. 366 p.

PURPOSE: This book is intended for engineering, technical, and scientific personnel, at industrial plants, research institutes, and design offices working in the field of corrosion-protection of stainless steel, high-strength structural steel, and light alloys.

SOV/137-58-11-23151

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 188 (USSR)

AUTHORS: Golubev, A. I., Tumanov, A. N., Filippova, A. P.

TITLE: Behavior of the Structural Components of Aluminum Alloys During the Process of Chemical and Anodic Staining in Sulfuric Acid  
(Povedeniye strukturnykh sostavlyayushchikh alyuminiyevykh splavov v protsesse khimicheskogo oksidirovaniya i anodirovaniya v sernoy kislote)

PERIODICAL: V sb.: Korroziya i zashchita metallov. Moscow, Oborongiz, 1957, pp 328-341

ABSTRACT: The behavior of various structural components of cast Al alloys during anodic (A) and chemical (C) staining was investigated. A was continued for 40 min in  $H_2SO_4$  of 200 g/liter concentration at  $18^\circ C$  and a cathode cd of  $0.6-1 \text{ amp/dm}^2$ . It was found that alloys cast under pressure are anodized at a higher voltage than chill-cast alloys. C was conducted in a solution containing (in g/liter):  $CrO_3$  3 and  $Na_2SiF_6$  3 at  $18-20^\circ$  during 10 min. Before the C and A a part of the surface of the alloy was etched in a 0.5% HF solution.

Card 1/2 Successive metallographic analysis of the specimens after etching.

Behavior of the Structural Components of Aluminum Alloys (cont.) SOV/137-58-11-23151

C, and A made it possible to establish that in case of a greater Cu content (4.15%) the alloy consists of a solid solution and the chemical compound  $\text{CuAl}_2$ . During A a film forms only on the surface of the solid solution. The chemical compound is etched away. Upon investigation of alloys containing an appreciable amount of Si it was established that the anodic film is then also formed on the surface of the solid solution only. The surface of Si crystals remains unchanged. Upon either chemical or electrochemical treatment of alloys no discernible oxide film could be discovered on the surface of the Si crystals. Addition of up to 10.46 Zn to Si alloys shows no appreciable effect on the behavior of the alloy during A and C. Alloys containing Mg have, along with the solid solution, an  $\text{Mg}_2\text{Si}$  component which is completely dissolved during the A of the alloy.

Yu. P.

Card 2/2

SOV/137-58-10-21376

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 132 (USSR)

AUTHORS: Chebotareva, I. I., Golubev, A. I.

TITLE: Investigation of the Processes of Anodizing of Aluminum Alloys in Oxalic Acid (Issledovaniye protsessov anodirovaniya alyuminiyevykh splavov v shchhavelevoy kislote)

PERIODICAL: V sb.: Korroziya i zashchita metallov. Moscow, Oborongiz, 1957, pp 342-353

ABSTRACT: In the process of anodizing of Al and its alloys (AMg, AMts, and D16) in 3% oxalic acid a decrease in anode cd is observed. For example, during the anodizing of Al and AlMg for one hour, the cathode cd decreases from 5 to 1.4 amp/dm<sup>2</sup>; in the course of anodizing of D16, it decreases from 5 to 2.8 amp/dm<sup>2</sup>; the thinnest films (F) form on the D16 alloy, and the thickest ones on the AMg alloy. The porosity of the anodic films was determined by the gravimetric method, i. e., by filling of the pores with oil. The greatest porosity was observed on D16 alloy and the least on Al. The rate of dissolution was established for the dissolution of oxide F in 3% oxalic acid proceeding simultaneously with its growth. The highest rate of

Card 1/2

SOV/137-58-10-21376

Investigation of the Processes of Anodizing of Aluminum (cont.)

dissolution of anodic F was observed for D16, the lowest for Al; this is explained by the different porosity and development of the surface of the F. The electrical insulating properties of the F can be considerably improved by filling the pores with 1154-grade (TUMKhP 1013-43) glyphthalic-oil lacquer.

1. Aluminum alloys--Processing
2. Oxide films--Decomposition
3. Thin films--Porosity
4. Oxalic acid--Performance

L. A.

Card 2/2

SOV/137-58-9-19601

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 210 (USSR)

AUTHORS: Golubev, A.I., Makarov, N.A., Samokhvalov, L.N.

TITLE: ~~The Building Up~~ of Oxide Films Obtained by the Anodic Oxidation of Aluminum and its Alloys (Napolneniye okisnykh plenok, poluchayemykh anodnym oksidirovaniyem alyuminiya i yego splavov)

PERIODICAL: V sb.: Korroziya i zashchita metallov. Moscow, Oborongiz, 1957, pp 354-367

ABSTRACT: The causes of the appearance of "white spots", which form upon the building up of an anode oxide film (F) in tap water at 90-95° were investigated. It is assumed that the process of building up of F in water acidulated with H<sub>2</sub>SO<sub>4</sub> should be regarded as the chemical reaction of the solution with the oxide F. The "whiteness" (W) may appear as a result of insufficient time for building up the F or as a result of its treatment in water at low pH (2.8-3.9). In the latter case, probably, the oxide F reacts not only with water but also with the SO<sub>4</sub><sup>2-</sup> forming on the walls of the pores of the Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> and other S-containing compounds which contribute to a stronger

Card 1/2

SOV/137-58-9-19601

The Building Up of Oxide Films (cont.)

adsorption of water or lacquer solvent during the building up and subsequent coloring. This causes the appearance of W. The local distribution of W might be the result of an unevenness in the thickness and porosity of F. W does not appear upon the building up in water at pH 4. W appearing earlier disappears upon the second building up at pH 4.5. A new method for colorless building up anode F on plated material in a solution containing 10 g/l  $\text{NH}_4\text{NO}_3$  and 0.05 g/l  $(\text{NH}_4)_2\text{HPO}_4$  was developed.

V.G.

1. Aluminum--Oxidation
2. Oxide films--Development
3. Electrolytes--Properties
4. Sulfuric acid--Applications
5. Water--Performance

Card 2/2

PHASE I BOOK EXPLOITATION

80V/4535

Vsesoyuznyy sovet nauchno-tekhnicheskikh obshchestv

Mezhkristallitnaya korroziya i korroziya metallov v napryazhennom sostoyanii  
(Intercrystalline and Stress Corrosion of Metals) Moscow, Mashgiz, 1960.  
358 p. 3,000 copies printed.

Ed.: I.A. Levin, Candidate of Technical Sciences; Ed. of Publishing House:  
I.I. Lesnichenko, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for  
Literature on Metalworking and Instrument Making (Mashgiz): V.V. Rzhavinskiy,  
Engineer; Editorial Board: I.A. Levin, Candidate of Technical Sciences  
(Chairman), V.P. Batrakov, Candidate of Technical Sciences, V.M. Nikiforova,  
Candidate of Technical Sciences, and A.V. Turkovskaya, Candidate of Technical  
Sciences.

PURPOSE: This collection of articles is intended for technical personnel concerned  
with problems of corrosion of metals.

COVERAGE: The collection contains discussions of intercrystalline corrosion of  
stainless steels and stress corrosion of carbon steels, low-alloy and stainless  
steels, and light-weight and nonferrous alloys. The tendency of steels of

Card ~~1/9~~



Intercrystalline and Stress Corrosion of Metals

SOV/4535

various composition and systems to corrode under certain conditions is discussed and the nature of corrosion and corrosion cracking is analyzed. No personalities are mentioned. Most of the articles are accompanied by bibliographic references, the majority of which are Soviet.

TABLE OF CONTENTS:

I. GENERAL PROBLEMS

Arkharov, V.I., Doctor of Technical Sciences, Professor. Intercrystalline Internal Adsorption of Dissolved Admixtures and Its Significance for Intercrystalline Corrosion Problems

3

Golubev, A.I. The Role of Intermetallic Compounds in Selective Corrosion Processes

15

II. INTERCRYSTALLINE CORROSION OF STAINLESS STEELS

Cheskis, Kh. I., Candidate of Technical Sciences, S.I. Vol'fson, and Yu. S. Medvedev, Engineer. Effect of Slow Heating on the Tendency of 1Kh18N9T Steel Toward Intercrystalline Corrosion

27

Card 2/2

ROZENFEL'D, Iosif L'vovich; GOLUBEV, A.I., doktor tekhn.nauk, otv.red.,  
retsenzent; IOFA, Z.A., prof., doktor khim.nauk, retsenzent;  
VEDENKIN, S.G., prof., retsenzent; BARKVITSER, A.L., red.izd-va;  
MAKUNI, Ye.V., tekhn.red.

[Atmospheric corrosion of metals] Atmosfernaia korroziiia metallov.  
Moskva, Izd-vo Akad.nauk SSSR, 1960. 371 p.

(MIRA 14:1)

(Corrosion and anticorrosives)

PHASE I BOOK EXPLOITATION SOV/5749

Golubev, Andrey Iovich

Anodnoye okisleniye alyuminiyevykh splavov (Anodic Oxidation of Aluminum Alloys) Moscow, Izd-vo AN SSSR, 1961. 198 p. Errata slip inserted. 2800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fizicheskoy khimii.

Resp. Ed.: I. L. Rozenfel'd, Doctor of Chemical Sciences; Ed. of Publishing House: A. L. Bankvitser; Tech. Ed.: G. N. Romanov.

PURPOSE : This book is intended for electrochemists and metallurgists, and for technicians and specialists concerned with anodic treatment of parts made from aluminum and its alloys.

COVERAGE: The book has been designed to fill the need for a systematized survey and summing up of the voluminous literature

~~Card 1/6~~

## Anodic Oxidation of Aluminum (Cont.)

SOV/5749

on the various chemical and electrochemical methods for treating and finishing the surfaces of aluminum and its alloys. It serves also to report on the laboratory investigations of the author and his colleagues who, throughout their experiments, used the same alloys under rigidly determined experimental conditions (volume of solution, electrolyte temperature, mixing efficiency, etc.). Particular attention is given to the process of anodizing aluminum alloys and to the physicochemical properties of anodic films. Problems of the corrosion of aluminum alloys and methods of preparing a surface for anodizing are also considered. The present work is based for the most part on studies made by the author in collaboration with A. N. Tumanov, N. A. Makarov, and workers at [unidentified] factory laboratories I. I. Chebotareva and A. I. Utyanskaya. A. N. Tumanov and N. A. Makarov assisted in Chs. 2, 7, 8, and 9; I. I. Chebotareva, in Ch. 6; and A. I. Utyanskaya, in Ch. 4. The author thanks I. L. Rozenfel'd, Doctor of Chemical Sciences, P. A. Akol'zin, Doctor of Technical Sciences, A. V. Belobzheskiy, Candidate of Chemical Sciences, A. P. Filippova, A. N. Samokhvalov, P. V. Strekalov,

Card 2/6

Anodic Oxidation of Aluminum (Cont.)

SOV/5749

and M. N. Ronzhin. There are 112 references: 48 Soviet,  
41 English, 22 German, and 1 French.

TABLE OF CONTENTS:

Introduction	3
Ch. 1. Corrosion of Aluminum Alloys	5
Aluminum alloys	5
General corrosion of aluminum alloys	5
Theory of intercrystallite corrosion and of corrosion cracking of aluminum alloys	17
Ch. 2. Preparation of the Surface of Aluminum Alloys Before Anodizing	27
Degreasing and pickling of the surfaces of alloys	27
Theory of the electrolytic and chemical processes for polishing metals	30

Card 3/6

GOLUBEV, A.I.; BELOBZHESKIY, A.V.; MIKHAYLOVSKIY, Ya.M.

"Theory of corrosion and metal protection" by N.D. Tomashov.  
Reviewed by A.I. Golubev, A.V. Belobzheskii, IU.N. Mikhailovskii.  
Zhur.fiz.khim. 35 no.12:2825-2826 D '61. (MIRA 14:12)  
(Metals---Corrosion)  
(Tomashov, N.D.)

TOMASHOV, N.D., doktor khim. nauk, prof., otv. red.; COLUBEV, A.I.,  
doktor tekhn. nauk, otv. red.; PALEOLOG, Ye.N., kand. khim.  
nauk, red.; AL'TOVSKIY, R.M., kand. khim. nauk, red.;  
MIROLYUBOV, Ye.N., kand. khim. nauk, red.; ARKHANGEL'SKAYA,  
M.S., red.; ISLENT'YEVA, P.G., tekhn. red.

[Corrosion of metals and alloys] Korroziia metallov i splavov;  
sbornik. Moskva, Metallurgizdat, 1963. 382 p. (MIRA 16:5)  
(Corrosion and anticorrosives)

ACCESSION NR: AT4013988

S/3070/63/000/000/0193/0195

AUTHOR: Golubev, A. I.; Strekalov, P.V.

TITLE: Semiautomatic installation for measurement of potential on the surface of alloy microcomponents

SOURCE: Novy\*ye mashiny\*i pribory\* dlya ispy\*taniya metallov. Sbornik statey. Moscow, Metallurgizdat, 1963, 193-195

TOPIC TAGS: alloy surface, potential distribution, surface potential measurement, microgalvanic couple, corrosion, aluminum alloy, aluminum corrosion, nickel aluminum alloy, nickel alloy

ABSTRACT: The corrosion rate of alloys frequently depends on the presence and effectiveness of microgalvanic couples on the metal surface. An installation has been constructed by the authors which is capable of determining and recording potential differences between alloy-structure components several decades of microns large, with a precision up to fractions of a millivolt. The installation is illustrated in Fig. 1 of the Enclosure. Electro galvanic

Card 1/8



ACCESSION NR: AT4013988

potentials between the structure components of an alloy are measured, using the compensation method, by a cathode voltmeter having an input resistance of approximately 150 megohms and provided with a high-resistance potentiometer PPTV-1. The cathode voltmeter represents a simple electrometric amplifier, fed from a battery. The test specimen, having a smoothly ground surface, is mounted in a bath filled with electrolyte, underneath a microscope on a micromanipulation table, permitting observation of a desired region on the specimen surface. A capillary is fastened to a micromanipulation column and is filled with electrolyte. The tip of this capillary can be located at a close distance over the spot investigated on the surface of the specimen. For electrochemical measurements, the internal diameter of the capillary must be several times smaller than the dimension across the crystallite investigated. At its other end the capillary is enlarged and is connected to a calomel half-cell. The body of the specimen is connected to the negative pole of the input side of the cathode voltmeter by an insulated conductor. The positive pole of the cathode voltmeter input side is connected to the negative pole of the potentiometer PPTV-1, the positive pole of which is connected to the calomel half-cell, closing the galvanic chain. The high-resistance potentiometer, together with the cathode voltmeter, permits compensating the

Card 2/8

ACCESSION NR: AT4013988

major part of the potential difference between the calomel half-cell and the metallic electrode on the specimen surface. The remaining smaller part of the potential difference is amplified in the cathode voltmeter and can be measured on its output side by a microammeter or galvanometer with a luminescent scale. When used together with the microammeter M-95, the obtainable sensitivity of the cathode voltmeter is from 100 mV to 0.2 mV per division. The potential of each investigated point of the specimen is determined by reading the decades off the potentiometer, and the units on the scale of the microammeter. A photographic device is focused on the luminescent scale of the microammeter and records the uncompensated potential changes on the surface of the specimen, while the specimen is moved horizontally underneath the stationary capillary tip by operating, at certain intervals, a selsyn coupled to the micromanipulation table. At the same time, the selsyn actuates a drive in the photographic recorder, causing a movement of the recording roll-film, synchronous with the horizontal dislocation of the specimen underneath the capillary tip. For example, Fig. 2 of the Enclosure shows curves of potential distribution of the surface of a specimen of aluminum-base alloy with 8% nickel in 0.1N NaOH at room temperature, obtained with the above described installation. The structure of the alloy consisted of the eutectic  $\text{Al}+\text{NiAl}_3$ .

Card 3/84

ACCESSION NR: AT4013988

Different size crystals of the intermetallic  $\text{NiAl}_3$  were scattered on the background of the eutectic. In the investigated alloy, the intermetallic phase represents the cathode, and a potential difference of 12 mV has been measured between the anodic background and the intermetallic phase. It has been found that this potential difference decreased with time (see Fig. 2 of the Enclosure). Orig. art. has: 3 figures.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 00

DATE ACQ: 20Feb64

ENCL: 02

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

Card 4/8

ACCESSION NR: AT4043074

8/0000/64/000/000/0204/0221

AUTHOR: Gracheva, M. P., Golubev, A. I., Ginberg, A. M.

TITLE: Structure of opaque oxide films on aluminum as indicated by electron microscope studies

SOURCE: Mezhvuzovskaya konferentsiya po anodnoy zashchite metallov ot korrozii. 1st, Kazan, 1961. Anodnaya zashchita metallov (Anodic protection of metals); doklady\* konferentsii. Moscow, Izd-vo Mashinostroyeniye, 1964, 204-221

TOPIC TAGS: anodized aluminum, anodized aluminum alloy, anodic oxide film, anodic film structure, electron microscope structural analysis, carbon colloid replica method, metal hydroxide penetration, film filling effect, current density, anodic film pore, film pore dimension, aluminum AV000, aluminum A00, aluminum AD-1, aluminum alloy AMts, aluminum alloy AMg, aluminum alloy D-1, aluminum alloy D-16, aluminum oxide film, aluminum corrosion

ABSTRACT: The mechanism of formation and structure of opaque oxide films was studied on samples of aluminum AV000, A00, AD1 and aluminum alloys D1, D16,

Card 1/3

ACCESSION NR: AT4043074

AMts and AMg (compositions given). Samples were prepared by chemical degreasing and bleaching (30%  $\text{HNO}_3$ ), then anodized in various baths under different conditions of temperature, voltage, duration and pH. Structural analyses of the films obtained utilized the carbon-colloid replica method and a magnification of 22000:1 on an electron microscope EM-3. It was established that opacity is not governed by sample composition, nor can it result from penetration of metal hydroxides into the film pores or the filling of films, but probably depends on film structure and the corresponding quantity and dimensions of the pores. Stepwise modification of the current density facilitates formation of an opaque film. The presence of pores and a cellular structure was confirmed. The latter is rearranged as the current density increases by stages; the oxide cell dimensions increase in the cell formation area and the number of cells per unit of surface decreases correspondingly. Pore diameters in the surface layers of films vary little during oxidation. A sharp discrepancy develops between the number of cells on the metal surface and the number of pores on the external surface of films. The number of pores becomes greater than the number of cells when the current density is increased by stages.

Card 2/3

ACCESSION NR: AT4043074

"The electron photomicrographs were prepared under the direction of F. P. Zalivalov."  
Orig. art. has: 7 tables, 2 graphs, 2 illustrations and 15 photomicrographs.

ASSOCIATION: none.

SUBMITTED: 13Mar64

ENCL: 00

SUB CODE: MM

NO REF SOV: 011

OTHER: 006

Card 3/3

L 28105-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/WB/GD

ACC NR: AT6013788

(A)

SOURCE CODE: UR/0000/65/000/000/0059/0079

53  
31  
841

AUTHOR: Golubev, A. I.; Ronzhin, M. N.

ORG: none

TITLE: Electrochemical and corrosion behavior of aluminum-base binary alloys and intermetallic compounds <sup>27</sup>

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2. Moscow, Izd-vo Metallurgiya, 1965, 59-79

TOPIC TAGS: aluminum base alloy, binary alloy, electrochemistry, corrosion, intermetallic compound

ABSTRACT: The binary Al-base alloys investigated contain components which are alloy additives (Fe, Ni, Ti, Cr, Mn, Sb) and their principal phases are Al-base solid solutions and the corresponding intermetallic compounds (IMC) ( $\text{FeAl}_3$ ,  $\text{NiAl}_3$ ,  $\text{CuAl}_2$ ,  $\text{Mg}_2\text{Al}_3$ ,  $\text{TiAl}_3$ ,  $\text{AlSb}$ ). Special experiments established that the potential-time dependence for isolated IMC crystals in a real binary Al alloy virtually coincides with the potential-time dependence for the corresponding synthesized homogeneous IMC. Standard electrochemical and corrosion tests along with the plotting of polarization curves showed that IMC (except  $\text{Mg}_2\text{Al}_3$ ) are cathodic phases while Al is the anodic phase. The Al-IMC  $\text{Al}_x\text{B}_y$  pairs in the alkali medium are more active than Al in pair with the B component of the corresponding IMC (B is the cathodic component). IMC

Card 1/4

L 28405-66

ACC NR: AT6013788

potentials occupy intermediate values with respect to the potentials of the components of binary Al-base alloys. The corrosion behavior of IMC may be markedly affected by the component remaining at the surface in the process of the selective dissolution of the compound. E.g. during the dissolution of  $\text{FeAl}_3$  in 0.1N NaOH during the first 40-50 min its potential becomes somewhat displaced in the positive direction while the corrosion rate increases at the same time. This is a consequence of the increase in the cathodic surface area of Fe in the process of the selective dissolution of the IMC. After the potential  $E = -0.890-0.920$  v is reached -- which corresponds to the passivation potential of  $\text{FeAl}_3$  on polarization curve 2 in Fig. 1 -- there occurs a sharp increase in the potential and decrease in the corrosion rate of this IMC. The anodic reaction with the most negative potential in these conditions is the magnetite-formation reaction:



$$E_{\text{calc.}}^0 = -0.847 \text{ v.}$$

Hence it may be assumed that the passivity of  $\text{FeAl}_3$  is due to the formation of  $\text{Fe}_3\text{O}_4$  at the surface of the fine-disperse iron remaining after the selective dissolution of Al from this IMC. Hydrogen overvoltage for IMC of the  $\text{Al}_x\text{B}_y$  type in alkali (NaOH) and neutral (NaCl) media is lower than for the cathodic component of the corresponding compounds when  $b_{\text{Al}_x\text{B}_y} = b_{\text{B}}$  in the region of Tafel curves. An analysis of the

Card 2/4



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ACC NR: AT6013788

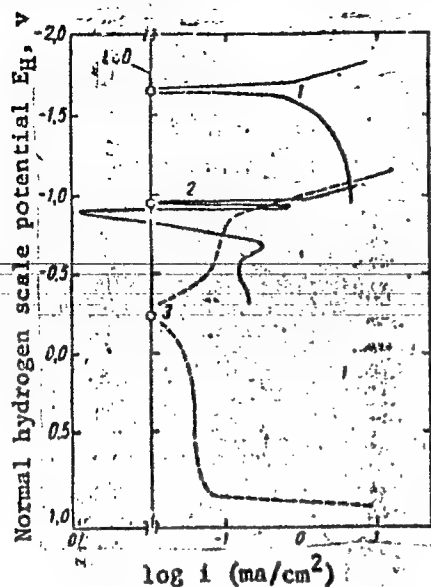


Fig. 1. Polarization curves for:  
1 - aluminum; 2 - FeAl; 3 - iron --  
in 0.1N solution of NaOH at 25°C

Card 3/4

L 28405-66

ACC NR: AT6013788

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anodic behavior of IMC shows that, from the electrochemical standpoint, the dissolution of such compounds as  $\text{CuAl}_2$  or  $\text{NiAl}_2$  in the presence of their self-dissolution potentials cannot involve the simultaneous passage of both components into the solution. These findings should contribute to the formulation of a unified theory of the corrosion of alloys which takes into account the special features of the corrosion of solid solutions, eutectics and IMC and their combinations which enter in the structure of any alloy. Orig. art. has: 12 figures and 6 tables.

SUB CODE: 07, 11/ SUBM DATE: 19Jul65/ ORIG REF: 020/ OTH REF: 013

Card

4/4 IC

ACC NR: AT6013808

(R)

SOURCE CODE: UR/0000/65/000/000/0351/0358

AUTHOR: Golubev, A. I.; Ulanovskiy, I. B.; Korovin, Yu. M.

ORG: none

TITLE: Corrosion of aluminum and titanium in clearance gaps

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2.  
Moscow, Izd-vo Metallurgiya, 1965, 351-358

TOPIC TAGS: aluminum alloy, titanium base alloy, copper containing alloy, sea water corrosion, oxygen, shipbuilding engineering/AV00 aluminum, AMg-5 Al alloy, D16 Al alloy, VT-1D Ti-Cu alloy

ABSTRACT: The article deals with the processes of the decrease in O<sub>2</sub> concentration in clearance gaps, the effect of O<sub>2</sub> and pH value on electrode potentials, and the work of macro-corrosion pairs, as investigated by a previously described method (Ulanovskiy, I. B., Korovin, Yu. M. ZhPKh, 1962, 35, 8, 1753). On Al and Ti alloys exposed to sea water the O<sub>2</sub> concentration in the clearance gaps sharply decreases to an insignificant level owing to the intense rate of consumption of O<sub>2</sub> for passivation processes in narrow gaps; in the case of Al, if this level falls below 0.5 mg O<sub>2</sub> per liter, the potential gets displaced by 500 mv in the negative direction, and this leads to the formation of differential-aeration pairs; the attendant hydrolysis of the anodic

Card 1/2

L 28541-66

ACC NR: AT6013808

3

products of corrosion causes the pH value in the clearance gaps to diminish from 8.0 (normal value) to 3.2-3.4. This, in its turn, leads to an increase in current intensity owing to the decrease in anodic polarizability. Thus, for pure aluminum AV00, in the presence of an  $O_2$  concentration of 0.1 mg/liter the current intensity of the differential-aeration pair is 10  $\mu$ a; if, however, given the same  $O_2$  concentration, the pH value decreases to 4.0, the current intensity of the pair increases to 18  $\mu$ a. A similar pattern is observed for the Al alloys AMg-5 and D16. As for Ti, it was found that, while it did corrode to a slight extent in narrow clearance gaps, it remains as highly corrosion resistant in sea water as it is under other conditions; the reason is that during anodic polarization pH value does not decrease in the clearance gaps of Ti. Cu-treated Ti is somewhat more corrosion resistant, specimens of a Ti-Cu alloy (VT-1D) were tested for 18 months in sea water and it was found that, while some characteristic corrosion arose on the barnacle-encrusted areas, the depth of this corrosion was insignificant -- of the order of 0.01 mm; even this slight corrosion, however, can be eliminated if the use of Ti to protect the underwater part of ship's hulls against barnacles is combined with the application of ultrasonic vibrations. Orig. art. has: 5 figures and 1 table.

SUB CODE: 11, 07, 20/ SUBM DATE: 19Jul65/ ORIG REF: 008, OTH REF: 003

Card 2/2 CC

L 28543-66 ENT(m)/T/EWA(d)/ENP(t)/ETI IJP(c) JD/WR/GD

ACC NR: AT6013810

(N)

SOURCE CODE: UR/0000/65/000/000/0366/0378

AUTHOR: Golubev, A. I.; Ulanovskiy, I. B.; Korovin, Yu. M.; Sevast'yanov, V. F.

ORG: none

TITLE: Effect of hydrogen sulfide on the corrosion of stainless and carbon steels

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2. Moscow, Izd-vo Metallurgiya, 1965, 366-378

TOPIC TAGS: stainless steel, carbon steel, sea water corrosion, hydrogen sulfide, hydrogen ion / 1Kh18N9T stainless steel, 1Kh13 steel, St. 3 carbon steel

ABSTRACT:  $H_2S$  in the sea is produced by sulfate-reducing bacteria which proliferate on barnacle-encrusted ship hulls and subsurface structures. In this connection, for stainless steel the effect of  $H_2S$  on electrode potential was investigated as a criterion of corrosion resistance of the steel. For carbon steel, the effect of  $H_2S$  on both the electrode potential and the self-dissolution processes was investigated. The experiments were performed in the presence of  $O_2$  concentrations of  $< 0.1$  and  $9.0$  mg/liter, variation in pH value from 8 to 2 and variation in  $H_2S$  concentration from 0 to 100 mg/liter.  $O_2$  was removed by blowdown with  $N_2$  extracted from air. The air, flowing via flow meter 1 (Fig. 1) and safety flask 2, entered cylinders 3-5 containing an alkali solution of pyrogallol in which it was relieved of most of its  $O_2$ . The

Card 1/4

L 28543-66

ACC NR: AT6013810

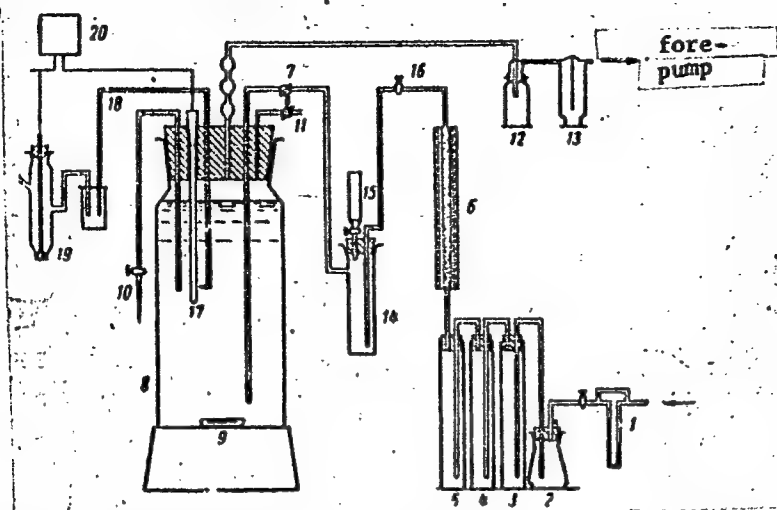


Fig. 1. Diagram of setup for investigating the effect of hydrogen sulfide on the electrode potential in the absence of oxygen:

1- flow meter; 2 - safety flask; 3, 4, 5 - absorption cylinders; 6 - tubular furnace; 7, 11 - three way valve; 8 - test vessel; 9 - magnetic stirrer; 10 - sampler; 12, 13 - safety flasks; 14 - vessel for producing H<sub>2</sub>S; 15 - separatory funnel; 16 - two-way valve; 17 - test specimen; 18 - electrolyte; 19 - calomel electrode; 20 - potentiometer

Card

2/4

ACC NR: AT6013810

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remaining  $O_2$  was absorbed in tubular furnace 6 containing copper chips heated to  $600^\circ C$ . The passage of air was facilitated by rarefaction produced with the aid of a fore-pump, with the rate of air inflow being determined by flow meter 1. Pure  $N_2$  entered vessel 8 via three way valve 7. To accelerate the process of  $O_2$  removal, the solution was stirred with magnetic stirrer 9. The samples were collected via tube 10.  $H_2S$  was produced by reacting  $HCl$  with a titrated  $Na_2S$  solution. The electrode potentials were measured by means of the P-4 potentiometer and anodic polarization curves were plotted by the potentiostatic method on using cylindrical specimens of 1Kh18N9T, 1Kh13 and St. 3 steels. The experiments were performed in Black Sea water ( $pH \approx 8.0$ ).  
Findings:  $H_2S$  and the intermediate products of its oxidation definitely affect the electrode potentials and corrosion of stainless and carbon steels. Thus, as the  $H_2S$  concentration of sea water increases the electrode potential is displaced in the minus direction owing to the sharp decrease in  $O_2$  concentration stemming from the consumption of  $O_2$  for the oxidation of  $H_2S$ . When the  $pH$  of sea water is  $< 5.0$ , the corrosion rate in the presence of  $H_2S$  gets intensified owing to the facilitation of the process of hydrogen depolarization. The presence of  $H_2S$  in sea water markedly affects the anodic passivity of stainless steel (Fig. 2). Thus, in  $H_2S$ -free water (curve 4) passive state sets in at a current density of  $\sim 3 \mu A/cm^2$ , whereas in water with 35 mg  $H_2S/liter$  the current density required to attain anodic passivity is 3 times as high; in water with 60 mg  $H_2S/liter$ , 9-10 times as high (curve 2); and in water with 80 mg  $H_2S/liter$  no passivity is observed (curve 1). Hence the higher the  $H_2S$  concen-

Card 3/4

ACC NR: AT6013810

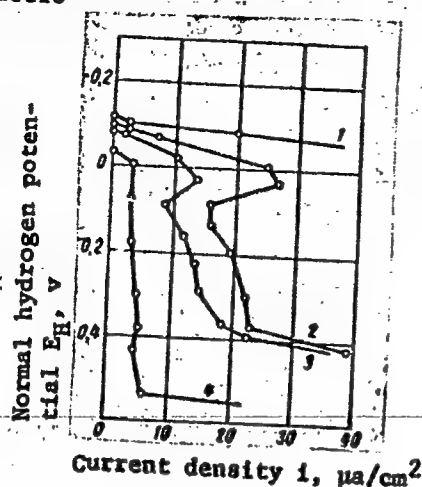


Fig. 2. Anodic polarization curves of 1Kh18N9T steel in sea water in the presence of hydrogen sulfide:  
1 - 80 mg/liter  $H_2S$ ; 2 - 60 mg/liter  $H_2S$ ; 3 - 35 mg/liter  $H_2S$ ; 4 - control experiment without  $H_2S$

tration of sea water is -- in the absence of  $O_2$  -- the faster the corrosion rate of steel becomes. If  $O_2$  is present in the solution, the corrosion of carbon steel with increasing  $H_2S$  concentration initially decreases owing to the decrease in  $O_2$  content, but later it increases. Orig. art. has: 7 figures, 1 table.

SUB CODE: 1.117.07.11/ SUBM DATE: 19Jul65/ ORIG REF: 018/ OTH REF: 001

Card 4/4 CC



BYUYRIN, A.I.; GOLUBEV, A.I.; NEKRASOV, V.P.; GULIY, V.M.; OL'KHOV, I.N.;  
KOLKHODZHAYEV, A.V.

Making boreholes with smaller diameter at the "Skeli Mine. Gor.zhur.  
no.8:27-30 Ag '65. (MIRA 18:10)

L 2623-66

ENT(m)/EPF(c)/ETC/ENG(m)/T/EMP(t)/EMP(z)/EMP(b) IJP(c) DS/JD/BW/WB

ACCESSION NR: AP5011364

UR/0365/65/001/002/0199/0206  
620.196

80  
76  
B

AUTHOR: Golubev, A. I.; Ronzhin, M. N.

TITLE: Electrochemical and corrosion properties of intermetallic compounds based on aluminum

SOURCE: Zashchita metallov, v. 1, no. 2, 1965, 199-206

TOPIC TAGS: corrosion resistance, electrochemistry, electrode potential, intermetallic compound, aluminum, nickel, copper, titanium, magnesium, chromium, man-  
ganese

ABSTRACT: Electrochemical and corrosion properties of intermetallic compounds ( $\text{FeAl}_3$ ,  $\text{NiAl}_3$ ,  $\text{CuAl}_2$ ,  $\text{TiAl}_3$ ,  $\text{AlSb}$ ,  $\text{Mg}_2\text{Sb}_3$ ,  $\text{CrAl}_7$ ,  $\text{MnAl}_6$ ) and pure metals were studied in two solutions: 3% NaCl and 0.1-normal NaOH. The ratio of electrolyte volume to sample surface area in a cell varied within 200-250 ml/cm<sup>2</sup>. A saturated calomel half-cell served as a reference electrode. Generally, in alkaline and neutral solutions, the hydrogen overvoltage on intermetallic electrodes is lower than on the corresponding pure metal electrodes. In 0.1-normal NaOH solution, the maximum potential difference between the pure components of the intermetallic compounds

Card 1/4

L 2623-66

ACCESSION NR: AP5011364

was 1-15 mV. The electrode potentials of intermetallic compounds have values intermediate between the electrode potentials of the pure metals. The kinetics of dissolution of the intermetallic compounds is a function of the electrochemical properties (anodic and cathodic behavior) of the pure metal constituents. In the region between the self-dissolving potential of the intermetallic compound and the steady-state potential of the cathode component, the anode behavior of the intermetallic compound is a function of the properties of the anodic component. The cathodic properties of the anodic component show up first at very high potential values. As a result of selective dissolving, the corrosion of the intermetallic compound is largely determined by that component which concentrates on the electrode surface. The hydrogen overvoltage, ( $-E$  in reference to a normal hydrogen electrode) on the intermetallic compounds and pure metals vs. logarithm of current density,  $i$ , is shown in fig. 1 of the Enclosure. The dependence of the electrode potential and the rate of corrosion of  $FeAl_3$  in 0.1-normal NaOH at 25°C upon time is shown in fig. 2 of the Enclosure. Orig. art. has: 4 tables, 3 figures.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii (Academy of Sciences, SSSR, Institute of Physical Chemistry)

SUBMITTED: 08Oct64

ENCL: 02

SUB CODE: MM, GC

NO REF SOV: 003

OTHER: 007

Card 2/4

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ACCESSION NR: AP5011364

ENCLOSURE: 01

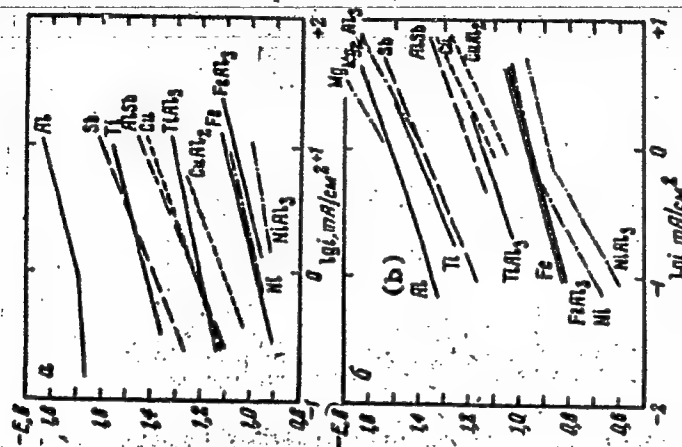


Fig. 1. a--0.1 normal NaOH; b--3% NaCl.

Card 3/4

L 2623-66

ACCESSION NR: AP5011364

ENCLOSURE: 02

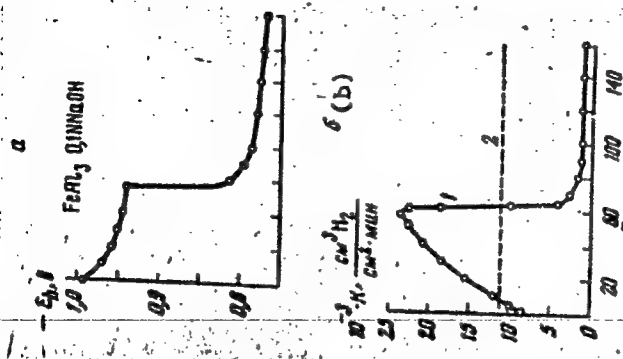


Fig. 2. a--FeAl<sub>3</sub> potential;  
b--rate of corrosion of FeAl<sub>3</sub>; 1--  
FeAl<sub>3</sub>; 2--99.99% Al.

Card 4/4

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000515910007-3

TOPIC TAGS: [illegible]

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CIA-RDP86-00513R000515910007-3"

**"APPROVED FOR RELEASE: 06/13/2000**

**CIA-RDP86-00513R000515910007-3**

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GOLUBEV, A.I.; IGNATOV, N.N.

Studying the process of anodizing aluminum alloys in a mixture of  
sulfuric and oxalic acids. Zashch. cat. 1 no. 4: 445-447 JI-Ag '65.  
(MIRA 19:8)

1. Institut fizicheskoy khimii AN SSSR.

L 14443-66 EWT(1)/EPF(n)-2/T-2/ETC(m)-6 WW/DJ  
ACC NR: AP6002970 SOURCE CODE: UR/0286/65/000/024/0144/0144

INVENTOR: Golubev, A. I.

ORG: none

TITLE: A labyrinth pump. Class 59, No. 177284

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 144

TOPIC TAGS: vacuum pump, pump

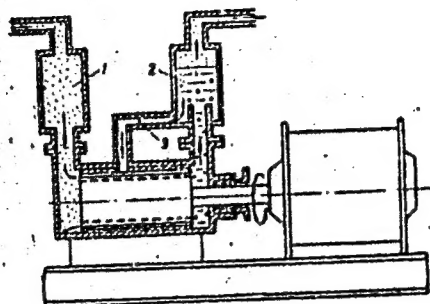
ABSTRACT: This Author's Certificate introduces a labyrinth pump based on Author's Certificate No. 126748. The device is designed for use as a vacuum pump. Expansion tanks are mounted in the space to be exhausted at the inlet and outlet of the pump. A recirculation tube connects the expansion tank at the outlet with the working cavity of the pump.

Card 1/2

UDC: 621.521 621.665.2

L 14443-66

ACC NR: AP6002970



1 and 2 - expansion tanks; 3 - recirculation tube.

SUB CODE: 13/

SUBM DATE: 20 May 64

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Card 2/2

L 28397-66 ENT(m)/ENP(t)/ETI IJP(c) JD/HW/JB/OD  
 ACC NR: AT6013796 SOURCE CODE: UR/0000/65/000/000/0166/0179

AUTHOR: Ronzhin, M. N.; Golubev, A. I.

ORG: none

TITLE: Studies of the passivity of iron, nickel and copper in an alkali medium

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2. Moscow, Izd-vo Metallurgiya, 1965, 166-179

TOPIC TAGS: corrosion, electrochemistry, iron, nickel, copper, electric potential, sodium hydroxide

ABSTRACT: This investigation, performed with the aid of potentiostatic and galvanostatic methods, deals with the anodic behavior of Fe, Ni and Cu in 0.1N and 1N NaOH at 25°C, and was carried out with the aim of elucidating the mechanism of dissolution of the intermetallic compounds FeAl<sub>3</sub>, NiAl<sub>3</sub> and CuAl<sub>2</sub> (cf. p 59 of this issue). The change in the potential with time was recorded by means of an SI-19 oscillograph. Findings: Three potential delays were observed on the E-τ (potential-time) curve of the reduction of the oxidation products of Fe forming under the thin, drying film of 1N NaOH solution. The values of these delay potentials are in satisfactory agreement with the values of the equilibrium potentials of the reactions: the first delay E<sup>1</sup> = -0.790 to -0.810 v -- Fe(OH)<sub>3</sub> + 3e<sup>-</sup> = Fe + 3OH<sup>-</sup>; the second delay E<sup>2</sup> = -0.890 v -- Fe(OH)<sub>2</sub> + 2e<sup>-</sup> = Fe + 2OH<sup>-</sup>; and the third delay E<sup>3</sup> = -0.950 to

Card 1/2